Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of:

Amendment of Part 97 of the Commission's Rules	**)**	
Governing the Amateur Radio Services	**)**	**WT Docket No. 04-140**
	)	

To: The Commission

REPLY COMMENTS OF RAY SOIFER

Ray Soifer hereby respectfully submits his reply to certain comments filed in response to the *Notice of Proposed Rule Making and Order*, FCC 04-79, 69 Fed. Reg. 24996, released April 15, 2004 (the Notice). These reply comments are timely filed. For his reply comments, Ray Soifer states as follows.

1. I filed comments in response to the Notice on June 15, 2004.

2. As discussed at ¶¶ 73-77 of the Notice, the license grantee of a space station in the amateur-satellite service must file with the Commission written pre-space station notifications twenty-seven and five months before initiating space station transmissions, seven days following initiation of these transmissions, and no later than three months after termination of these transmissions[1]. As the Commission states at ¶ 73, these notifications are required so that the ITU Radiocommunication Bureau may be informed of space stations in the amateur-satellite service[2].

[1] 47 C.F.R. § 97.207 (g), (h), (i).
[2] The Notice refers to *Radio Regulations* No. 25.11 as it existed prior to WRC-03, when it required administrations authorizing space stations in the amateur-satellite service operating in bands shared with other services to inform the Radiocommunication Bureau. This language was removed from No. 25.11 by WRC-03, but space stations in the amateur-satellite service, whether or not operating in bands shared with other services, remain subject to the advance publication and notification requirements of Articles 9 and 11, respectively. See Resolution 642, and *Radio Regulations* Nos. 9.1, 11.3, and 11.4.

3. The Radio Amateur Satellite Corporation (AMSAT) originally proposed[3] that the two pre-space notifications be replaced by a single filing within thirty days after a launch commitment is obtained. The Commission agreed with AMSAT that the present requirement is impractical, but proposed instead, at ¶ 76, to require a single pre-space notification within thirty days after a launch vehicle is determined but no later than 90 days before the space station is integrated into the launch vehicle. The Commission states that this would provide adequate time before launch to make changes in the space station if it finds that the notification is deficient in some material way.

4. In practice, the determination of a launch vehicle and the obtaining of a launch commitment are generally synonymous, since a launch vehicle cannot be finally determined absent a definitive agreement to launch the spacecraft.

5. ARRL, the National Association for Amateur Radio (ARRL), commented that the Commission's proposed deadline of 90 days before integration would be difficult to meet in some situations, especially those involving human space flight and/or the International Space Station. ARRL proposed changing the deadline to 60 days. I agree, since as they point out, one purpose of such a rule is to avoid the necessity of frequent waivers which the Commission now must issue under the current timetable. See ¶ 12, *infra*.

6. The Commission proposes, at ¶ 77, to require the submission of an orbital debris mitigation plan as part of the pre-space notification[4], and notes that the submission of a plan that is deficient in some way might require that the Commission take further action, such as modification of the licensee's station license grant, in connection with the space station. Also at ¶ 77, the Commission seeks comment on whether it should require an affirmative prior approval

[3] RM-10621.
[4] See the proposed § 97.207(g) at 51-52 of the Notice.

of amateur space station launches and operations, and on whether there are alternative processes, such as the use of licensing procedures based under or upon procedures in Part 25 of its Rules, that may help to address its own and amateur radio operators' concerns with the timing of amateur space station notification filings.

7. With due respect, using the ITU notification process to address orbital debris mitigation is a bad idea. The purpose of notification is to assist other administrations, and their licensees, in radio frequency spectrum management by informing them of the orbits, frequencies and emissions to be used by forthcoming space stations, as expeditiously as possible and in a standard format compatible with an existing ITU database. The *Radio Regulations* say nothing about orbital debris mitigation, and contain no authority for the Commission to delay submitting a notification to the Radiocommunication Bureau because of concern about orbital debris. In addition, changes to a spacecraft's design and construction to accommodate orbital debris concerns would, in all likelihood, take far more time to accomplish than the 90 days envisioned by the Commission's proposal. In contrast, the choice of operating frequency within a particular band typically requires little more than a new crystal or software programming, and often is not finalized until several months before integration. In some cases, it can even be changed in orbit.

8. If the Commission wishes to require an orbital debris mitigation plan, and to take that plan into account in determining whether or not to authorize the launch or operation of the space station, a far more straightforward approach would be simply to require affirmative prior approval through an application and review process separate from ITU notification.

9. This raises two separate issues: what, if anything, should the Commission do about orbital debris mitigation in the amateur-satellite service, and, whether or not it takes on the

orbital debris issue, are there other reasons why it should initiate an affirmative prior approval process for amateur space stations. If so, how should that process be structured?

10. A possible role for the Commission in overseeing orbital debris mitigation was explored in IB Docket No. 02-54, and the orbital debris language for § 97.207(g) proposed in the present Notice was taken, word for word, from the Commission's *Notice of Proposed Rulemaking* in that proceeding[5]. The record, however, contains a variety of comments, many of which raised substantial issues with respect to the proposed requirements. See, in particular, the comments and reply comments of AMSAT. Nowhere in the public record has the Commission reviewed and responded to the comments submitted in that proceeding[6]. Instead, it simply restates its original proposal in the present Notice.

11. I strongly urge the Commission to go back and review the comments in IB Docket No. 02-54 and publish a detailed response before reaching a conclusion, possibly through a Second Notice of Proposed Rulemaking. This would give interested parties an opportunity to offer substantive comments after seeing the Commission's reasoning.

12. In their comments in the current proceeding, AMSAT and ARRL generally agreed with the position taken here and in my own comments. ARRL, in particular, urged that the Commission deal with orbital debris mitigation in a separate rulemaking proceeding from the present "omnibus" docket. I agree with ARRL. However, these commenters referred to the orbital debris proceeding as IB Docket No. 02-34 rather than IB Docket No. 02-54. Orbital debris mitigation in the amateur-satellite service, including the proposed new language for § 97.207(g), was addressed in the latter proceeding, and not the former one. As noted in ¶ 10,

[5] FCC 02-80.
[6] On May 19, 2003, the Commission released a combined *First Report and Order*, FCC 03-102, covering IB Docket Nos. 02-34 and 02-54. This document was entirely devoted to licensing procedures under Part 25, and did not address orbital debris mitigation issues.

supra, on May 19, 2003, the Commission issued a combined *First Report and Orde*r, FCC 03-102, dealing with certain aspects of the two dockets, but this document did not address the amateur-satellite service or any of the comments that had been filed in IB Docket No. 02-54 that addressed amateur-satellite service issues.

13. AMSAT and ARRL were the only commenters, in addition to myself, who responded to the Commission's request for comments on the issues of orbital debris mitigation and affirmative prior approval of space stations in the amateur-satellite service. It is worth noting that no comments were filed in support of the present provision that "any amateur station may be a space station[7]."

14. In the present Notice, the Commission gives no clue about how it would evaluate the orbital debris mitigation plans it wants to receive. What are the proposed requirements? What would differentiate a satisfactory plan from one that is not?

15. Who, indeed, would be responsible for the plan itself, and its implementation? The Commission's present proposal says it would be the amateur license grantee of the space station. However, § 97.113(a)(3) of the Rules effectively prohibits that person from being an employee of the organization which would operate the satellite, since all of the satellite's transmissions are deemed to be made by its license grantee and that section prohibits a license grantee from making transmissions on behalf of an employer.

16. As a practical matter, most spacecraft in the amateur-satellite service are too small to accommodate orbital debris mitigation features, and most of the available launches are to orbits that are high enough so that the spacecraft are likely to remain in orbit for centuries. To require such spacecraft to have de-orbiting systems, or to launch to orbits that are likely to decay in a relatively short time, would, in effect, be to prohibit them. On the other hand, apart from the

[7] 47 C.F.R. § 97.207(a).

possibility of a direct collision, the risk to other spacecraft from such small satellites is minimal, since they typically carry no propulsion systems, dangerous chemicals or explosive devices[8].

17. Turning now to the issue of affirmative prior approval, I urge the Commission to return to its prior practice, pre-1988, of requiring prospective operators of space stations in the amateur-satellite service to apply for and obtain affirmative approval – in effect, a space station license – prior to launch and operation. This would permit the Commission to consider not only the technical characteristics of the proposed space station and associated command stations, but also whether their mission belongs in the amateur-satellite service and whether their proposed operating arrangements are accordance with the Rules. The application and approval process should determine, *inter alia*, whether the proposed command system is adequate "to ensure immediate cessation of their radio emissions by telecommand, whenever such cessation is required under the provisions of these Regulations"[9], and whether the prospective space station license grantee and the operators of associated command stations are in compliance with the no-pecuniary-interest provisions of the Rules, including the aforementioned 47 C.F.R. § 97.113(a)(3). Matters such as these need to be considered and passed upon by the Commission prior to launch, not after the fact when the only available remedy might be an order to cease operation after an enforcement action, which might not even be capable of being complied with if the command system turns out to be inadequate. As noted earlier, I propose that this process be entirely independent of the ITU notification procedure, so that each may be dealt with within a time frame appropriate to itself.

[8] High-altitude elliptical-orbit satellites such as AMSAT-OSCAR 40 do have propulsion systems, and might usefully be incorporated into an orbital debris mitigation scheme. Small LEO satellites such as Cubesats and Microsats, which physically are cubes approximately 100 mm and 230 mm on a side, respectively, do not. The Cubesat and Microsat spaceframe designs are both commonly used for LEO satellites in the amateur-satellite service.
[9] *Radio Regulations* No. 22.1.

18. The Commission's 1988 decision to cease issuing amateur space station licenses and adopt the present provision that "any amateur station may be a space station" had its roots in the large number of waivers which the Commission found itself issuing to permit astronauts to operate from the space shuttle. I am not proposing that the Commission issue space station operator licenses, only station licenses. Thus, the amateur station aboard the International Space Station would only have to be approved once.

19. With respect to the application and approval process itself, I believe that Part 5 provides a more appropriate model than Part 25. The latter's complexity is indicated by the fees to be submitted with an application for authority to launch and operate a system of space stations, currently $339,730 for the initial application and $24,720 per amendment. Amateur space stations are far simpler than the commercial systems covered by Part 25, and are similar in many respects to the Experimental Service stations covered in Part 5. The $50 fee for a Part 5 application is more appropriate as well.

20. With respect to the prohibition of transmissions on behalf of an employer [47 C.F.R. § 97.113(a)(3)] discussed at ¶ 15, *supra*, Greg Sample of the Greater Dayton Area Hospital Association (Sample) asked the Commission to consider modifying this provision to permit certain personnel employed by hospitals to operate amateur stations in the course of their employment, during emergency situations. Without commenting on the merits of Sample's proposal, this matter was not addressed in the Notice and it would thus be out of order for the Commission to consider it as part of the present proceeding. However, hospital employees in emergency situations are not the only examples where some might argue for the existing prohibition to be relaxed. As Sample points out, teachers are permitted to make incidental use of

amateur radio in classroom instruction[10]. Should this "educational exception" be broadened or interpreted to include university faculty members supervising graduate student research, or even the graduate students themselves who may hold paid assistantships?

21. The present language of § 97.113(a)(3) was adopted in 1988, but the prohibition of communications in which the license grantee or control operator has a pecuniary interest is at the very heart of the definition of amateur radio, and has been included in the *Radio Regulations* since 1927[11]. If the Commission decides to revisit this issue, I would urge that it be done very carefully and with full opportunity for all interested parties to weigh in, perhaps through a *Notice of Inquiry* separate from the present proceeding.

RESPECTFULLY SUBMITTED,

/s/

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[10] 47 C.F.R. § 97.113(c).
[11] *Radio Regulations* No. 1.56, and 47 C.F.R. § 97.3(a)(4).